Malignant Melanoma metastasizing to the Thyroid Gland: A Case Report and Review of the Literature

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Introduction

The incidence of metastases to the thyroid gland in autopsy series has been reported to range between 1.25-2.4\%. The most common sources of metastasis are renal cell carcinoma, breast carcinoma, and lung carcinoma\(^2\). Clinically apparent spread of malignant melanoma to the thyroid gland is rare, accounting for less than 3\% of metastatic tumors to the thyroid\(^1\).

We present a case of a patient with malignant melanoma metastatic to the thyroid gland as an early manifestation of distant metastatic disease, as well as a review of the literature.

Case Report

A 68-year-old male with a 30 pack year tobacco history presented with a 1.5cm left posterior triangle neck mass. Physical exam and radiographs performed at the time failed to reveal a primary tumor. An FNA of the mass at the time revealed a poorly differentiated squamous cell carcinoma. The patient was taken to the operating room for staging endoscopy and a repeat FNA. Again, there was no evidence of a primary lesion, but FNA at this time was suggestive of melanoma, and this diagnosis was confirmed via immunophenotyping, which showed the cells staining positive for Melan A and S-100 (Figure 1). Biopsies of the orbit, nasopharynx and tongue base were negative. The patient then underwent a left modified neck dissection, the patient presented with a diffusely enlarged thyroid gland from which fine needle aspiration revealed metastatic malignant melanoma. Results: A few months following this, the patient began having seizures and was found on MRI to have metastatic disease to the brain. He developed ventilator dependent respiratory failure and required a nasal gastric tube for the placement of a tracheostomy tube.

Conclusion: Patients with a history of malignancy and a thyroid nodule present a diagnostic dilemma—it is benign, a new primary, or a metastasis? Review of this case and the literature strengthens the argument that any patient with a history of malignancy and a thyroid mass should be considered as having metastasis until proven otherwise.

Discussion

The case presented above is similar to the few other case reports detailing metastatic melanoma to the thyroid gland as an early manifestation of distant metastatic disease. As with our patient, the most common complaint among patients with metastatic disease to the thyroid gland is a neck\(^3\) mass. Some authors have found that the pathology shows replacement of the thyroid by melanoma, and that the clinical symptomatology is indistinguishable from other thyroid tumors\(^4\).

Various autopsy studies have revealed the incidence of malignant melanoma metastasizing to the thyroid gland to be high. Although Nakayama et al. found melanomas to account for less than 1\% of clinically apparent metastatic thyroid tumors, autopsy studies have shown the number to be as high as 3\% of all metastatic lesions to the thyroid\(^1\). This disparity can be explained by the fact that in autopsy studies, metastatic lesions are discovered only upon microscopic examination of small, careful cuts of the gland. In autopsy studies focused only on patients with melanoma, Paul et al. found the incidence of thyroid metastases to be 20% in 261 autopsies performed\(^5\). Shimaoka et al. found thyroid metastases in 39\%\(^6\). It is not surprising that melanoma has such a high propensity for the thyroid gland given its vascularity and the hematogenous route of spread. Melanoma has the ability to metastasize to almost every organ, with the most common sites being lungs, liver and brain\(^7\). Although patients with melanoma may have thyroid metastases without consequence, it is rare that a mass in the thyroid should be their only clinically apparent sign of metastatic disease. Although our patient was diagnosed to have additional inguinal lymph node and brain metastases during his hospital course, it was his enlarged thyroid gland that was the early indication of distant metastases.

Metastases of any malignancies to the thyroid are much more common than one would expect. The incidence of metastases in the thyroid gland is fairly high in patients with known metastatic tumors. One autopsy study of 732 patients with known malignancy showed 2.8\% with thyroid malignancies\(^8\). Others have reported incidences as high as 9\%\(^9\). Combining studies, a representative figure is 5-6\%. These surprising numbers have prompted some to state that melanoma is the most common primary tumor of the thyroid in autopsy series\(^10\). Although Nakhjavani et al. describe metastatic melanoma in the thyroid gland years before and years after the primary lesion is discovered\(^11\). Nakhjavani et al report months between detection of primary malignancy and metastases to the thyroid\(^11\).

Any patient with a history of malignancy and a thyroid nodule presents a diagnostic dilemma. Is it a benign nodule, a new primary, or a metastasis? The FNA can be very helpful in distinguishing these entities. If it reports a melanoma, it is “a new primary suggesting a neoplastic recurrence, or it is merely the growth of microscopic deposits from a much earlier neoplasm”\(^12\). Others have authored similar dilemmas— Ivy describes melanoma in the thyroid gland years before and years after the primary lesion is discovered\(^11\). McCabe et al. report an average survival of 12 months. In discussing melanoma specifically, patients with metastatic melanoma have a median survival of 24 months, irrespective of site of malignancy\(^13\). Less than 1\% of melanoma patients have synchronous metastatic disease and when combined with other poor prognostic indicators, surgical management of metastatic melanoma is most often limited to palliative treatments\(^14\). Thyroidectomy is an accepted modality for relief of dyspnea or dysphagia, or in our patient, performing a tracheostomy. In the rare case that the thyroid is the only site of metastatic deposits, thyroidectomy can be curative\(^15\).

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References